| **Oil and Gas Leasing and Unit Database and Mapping Upgrade** | **FY2003 Request:** | **$410,000** |
|---|---|---|
| | **Reference No:** | **35735** |

**AP/AL:** Appropriation  
**Category:** Development  
**Location:** Statewide  
**Election District:** Statewide  
**Estimated Project Dates:** 07/01/2002 - 06/30/2004

**Project Type:** Information Systems

**Contact:** Mark Myers  
**Contact Phone:** (907)269-8800

**Brief Summary and Statement of Need:**

This CIP requests the acquisition and development of a database and the tools necessary for managing the state's oil and gas units and leases and to create maps, displays, web pages and reports necessary to implement the area-wide and shallow gas leasing and exploration licensing programs. This diverse data includes seismic, well, gravity magnetic, ownership and cultural data, all of which is essential to the division's core business function of managing the state's oil and gas resources.

**Funding:**

| | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | Total |
|---|---|---|---|---|---|---|---|
| Gen Fund | $410,000 | | | | | | $410,000 |
| Total: | $410,000 | $0 | $0 | $0 | $0 | $0 | $410,000 |

| | | |
|---|---|---|
| ☐ State Match Required | ☒ One-Time Project | ☐ Phased Project ☐ On-Going Project |
| 0% = Minimum State Match % Required | ☐ Amendment | ☐ Mental Health Bill |

**Operating & Maintenance Costs:**

| | Amount | Staff |
|---|---|---|
| Total Operating Impact: | 0 | 0 |
| One-Time Startup Costs: | 0 | |
| Additional Estimated Annual O&M: | 0 | 0 |

**Prior Funding History / Additional Information:**

This is a new project request.

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**Detailed Project Justification**:

Evaluation and management of the state's leases, units, and petroleum resources requires the division to maintain a diverse database consisting of seismic, well, gravity, magnetic, ownership and cultural data. Some of this data, particularly well and seismic data, is extremely confidential and valuable. All the data is essential to the division's core business function of managing of the state's oil and gas resources.

With 35 active oil and gas producing and exploration units, over 1100 active leases, and over 5600 wells, this critical highly specialized task has become more and more complex and difficult to manage. Added to the workload are the addition of a new annual area wide lease sale (North Slope Foothills) and the implementation of two new additional leasing/licensing programs (shallow gas leasing and exploration licensing). These new programs have added a substantial requirement for additional data acquisition and management. At this point in time these new programs alone have resulted in 170 new conventional leases, applications for more than 300 shallow gas leases and four large exploration licenses containing nearly 2.0 million acres of land.

In order to effectively manage this large and expanding diverse data set the division needs to acquire, manage and distribute this data to key users more efficiently and effectively, both within and, when appropriate, external to the division. Non-confidential data provided by the division is in high demand from key policy makers in the administration, legislature, and federal officials. In addition to the general public, other key users are oil and gas companies, policy councils, academics and local governments. For example, data from the division's website has been used extensively on issues involving ANWR and the natural gas pipeline.

This CIP request is designed to fund the acquisition and development of an integrated database and the tools necessary to use this database to manage our oil and gas units and leases and to create maps, displays, web pages and reports necessary to implement the area-wide leasing program within the State of Alaska. The primary products of this project will be to implement the following tasks:

**Task 1: Create a database of scanned and digital well logs.** Evaluation and management of the state's petroleum resources requires the use of several thousand well logs, many of which are available only in paper format. Modern interactive interpretive applications now utilized by the division require well logs to be in digital format if proper evaluations and management decisions are to be made. The division recently acquired a log scanner to convert paper logs to digital format and has also recently expanded its PC-based log analysis capability. This task will implement a contract to scan and digitize into the division's well-log database those paper logs critical to the accomplishment of the division's mission of evaluating and managing the State's petroleum resources. We are working with the Alaska Oil and Gas Conservation Commission (AOGCC) to prioritize a list of critical wells that will be relevant to both groups and related to upcoming lease sales. We also plan to establish a set of interagency standards for digitizing well logs with AOGCC that will be used on this as well as any future projects. The digital well data will be shared with AOGCC to eliminate data duplication and will eventually be merged into a common database.

**Task 2: Create a database of accurate well locations.** The division has been unable to acquire or to develop a suitably accurate system to correctly calculate the subsurface spatial (x, y, z) coordinates of a deviated directionally drilled well bore, particularly for the last segment of the borehole that usually penetrates the geologic horizon or reservoir of interest. Accurate depiction of subsurface depths and geospatial coordinates is critical for lease-line setback requirements, drainage and tract allocation determinations, extended confidentiality determinations, reservoir and field management decisions, permitting processes and ownership questions. We must have access to accurate well location data to technically defend our conclusions if issues arise when working with unit operators and lessees. This task will fund the hiring of temporary workers to work with the data that is currently available through AOGCC. These personnel will develop a suitable directional survey correction algorithm, establish a basic database of directionally corrected well logs in a format useable by the division, and provide the division with this data as well as the hardware, software and training necessary to retain this capability at the close of the project.

**Task 3: Create digital boundaries for all tracts previously put up for lease.** We do not have a complete set of accurate geographic digital boundaries for the tracts that the State has put up for lease. A lot of work has been done to create a database depicting the boundaries of the land that is currently under lease but this alone cannot answer all of the questions we need to answer concerning ownership, state land valuation, field management decisions and permitting. Due to this lack of accurate information, we also cannot produce up-to-date maps showing what lands have been put up for lease historically. This information is also necessary to allow us to

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determine the best methods for leasing state lands in the future. This task would fund the hiring of temporary workers to create digital boundaries for the rest of the tracts that have been put up for lease.

**Task 4: Create a best-available GIS database.** We need to create a consistent GIS database that can be used by our in-house mapping systems in support of area-wide leasing and unit decisions. Currently there are multiple sources of coastline files, hydrography, infrastructure, and political and administrative boundaries that need to be filtered prior to making any of our maps. We just recently received the new ANWR boundary that was agreed upon by the State and the Federal Government. This boundary does not match any of our current tract and ownership boundaries that were based on older information and will require us to update all of this information. This task would fund the hiring of temporary workers to create a consistent, stable, and "best available" database that can be used by our in-house mapping systems to create maps. Establishing a consistent cultural database will help to streamline the work within the Division and allow us to make future lease boundaries and maps more efficiently. It will also help to eliminate the numerous questions we get related to mismatching boundaries on our maps.

**Task 5: Create maps showing the lease activity of the state.** After developing accurate databases of the unit locations, lease locations, well locations and ownership, we will be able to create maps that will be distributed to the public both in paper form and downloadable from the division web page to allow the public better information on the disposition and location of the oil and gas leases within the state.

**Task 6: Support the conversion of leasing data to an Oracle Database.** We currently enter all of our lease sale data, administrative data and supporting data into a number of different databases as well as into GIS and text files. Every time we need to access this information, we need to merge these data sets into a form that is useable by the division staff. This task would design and import our current data into a database using the division's Oracle database that could hold all of these different types of data in one location to allow for easier and more efficient access to it. This would help to streamline the process of analyzing and evaluating this information necessary for us to do our job.

**Task 7: Create lease information web pages.** This task will implement a contract for a vendor to design and install the tools necessary for Internet access to our leasing and unit data that would be dynamically linked to our in-house database to allow access to view information on state units and the tracts being leased as well as those that have already been leased. This task will allow the public, private sector, and State agencies to have full access to the State's unit boundaries, lease data and our well data in an interactive environment. The division receives approximately 25 calls each day for information related to lease and well data. These inquiries require in-depth research of our databases in order to prepare reports to answer our customer's requests for information. Division personnel often spend many hours per request in order to respond to them. A broadly distributed online, electronic database of lease and well information will allow our customers to directly access this information without delay. This task will be coordinated with the current "Core GIS" project being developed by LRIS, and will be developed to work as part of this project. We are also working with AOGCC to insure that their data will also be accessible through this same system if they obtain the funding for their part of the program.

**Specific Spending Detail**:

Contractual Services (73000): Professional Services contract to scan and digitize well data into our in-house database. Hire temporary staff to create a database of accurate well locations for directional wells in the state. Hire temporary staff to create digital boundaries for tracts that have been put up for lease historically. Hire temporary staff to create a consistent, stable, and "best available" GIS database for in-house mapping. Professional Services contract to design and implement an Oracle database to hold our diverse lease and well information. Professional Services contract to design and install the tools necessary for Internet access to our leasing and unit data. Provide staff training in how to use the system.

Hardware and Software (74000 & 75000): Update existing hardware and software as necessary to hold and manage lease and unit data. Purchase the software necessary to establish a basic database of directionally corrected well log data as recommended by the contractor. Purchase any software necessary to provide Internet access to unit and lease data.

| Line Item | Estimated $ Expenditure |
|---|---|
| 73000 - Contractual | $350.0 |

| | |
|---|---|
| 74000 - Commodities | $40.0 |
| 75000 - Capital | $20.0 |

**Annual Operating and Maintenance Costs**:

No statistics are available yet on network bandwidth demand due to possible increased access to the data collected. The costs of supporting any computer and software infrastructure improvements will be minimal and should be offset by the operational efficiencies that will be gained from reducing the amount of time spent by staff to process this information.

**Project Support**:

This project will have a broad base of public and agency support since it will allow for easier and more convenient access to information on State oil and gas leases and information about wells drilled on State lands. Native corporations will also be highly supportive, as will industry, since they each would have much to gain through access to this data. This project will also support the lease sale program, which creates local jobs and helps to increase the state revenues from any development that might occur from this program. By supplying this information to the public in a convenient and efficient manner, the public will benefit by having quick access to this data and the leasing program will improve by freeing up personnel time to work on lease sales.

**Project Opposition:**

None anticipated.

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